

Page 8

USSN 09/875,997

July 22, 2004

REMARKS

This is in response to the office action mailed April 28, 2004.

Claims 2 to 17 and 19 to 30 are now in this application. Claim 30 has been amended to recite that the enzymes on the first and second enzyme-anchor complexes respectively are different from each other, previously inferred from the recitation in the claim that these enzymes perform different functions.

(A) The Rejections

Claims 2 to 17 and 19 to 30 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 5-15, 17 and 23-27 of copending application number 09/587,818. A Terminal Disclaimer is submitted herewith to overcome this rejection.

Claim 30 is rejected under 35 U.S.C. 102(b) as being anticipated by Simonson. The Examiner states that Simonson teaches a composition comprising enzymes attached to a carrier component designed to increase affinity of the enzyme to tooth surface. However, as will be discussed below, the claimed invention as set forth in claim 30 clearly recites structural and content particulars of the composition which are absent from the Simonson reference.

Page 9

USSN 09/875,997

July 22, 2004

(B) Discussion of Simonson and Comparison With Claimed Invention

Simonson describes a technique for degrading plaque in the oral cavity by using a modified glucanohydrolase, a plaque dispersing enzyme. The modification is achieved by chemically combining a carrier to the enzyme which results in the modified enzyme (not carrier) having a specific and unique affinity for a tooth's surface. Based on both the enzyme and the carrier, Simonson is limited to an oral therapeutic that is carried to the tooth surface for the sole purpose of dispersing dental plaque without further action, either on the remaining plaque or the dispersed plaque.

The composition described in Simonson is, at best, a two-component system (carrier and gluconohydrolase). After the enzyme and carrier are combined, a single modified compound is produced. The result of the original two-component and then modified single composition is that the modified composition has only one entity (i.e. a modified gluconohydrolase) with enzymatic activity for the single purpose of dispersing dental plaque. Consequently, the Simonson invention is a composition that results in a single enzyme from two components for a single purpose. Finally, the Simonson invention acts directly on dental plaque and does not act upon either the dispersed plaque, the plaque degradation

Page 10

USSN 09/875,997

July 22, 2004

products nor the bacteria associated with the dental plaque.

The presently claimed invention is for a composition that contains two different enzymes for two distinct and discrete purposes. Each of the enzyme-anchor complexes in the composition are derived from two components: an enzyme and an anchor. Consequently, the claimed invention, unlike the Simonson invention with only two components, has four components: two anchors and two different enzymes with different functioning characteristics.

There is a fundamental difference between Simonson and the claimed invention and this fundamental difference makes the claimed invention clearly distinguishable from Simonson. Simonson is limited to only dispersing dental plaque, whereas the claimed invention addresses biofilm components and by-products. In essence, the claimed invention expands the concept of dismantling biofilm by further treating the resultant components and by-products of the dismantled biofilm.

Simonson does not teach or suggest any such arrangement. Simonson does not address in any manner the products that result when the dental plaque structure is dispersed. Consequently, Simonson describes only a composition that has a single modified

Page 11

USSN 09/875,997

July 22, 2004

enzyme that has a single purpose. It is the *modified enzyme* in Simonson that has an affinity for the tooth surface, unlike the presently claimed invention where the anchor serves this purpose. In the present invention, the enzyme is not modified as described in Simonson and its functional capabilities therefore not significantly affected or compromised by the formation of the complex.

Furthermore, Simonson does not address the bacteria associated with dental plaque. The claimed invention, however, extends the concept of simply dismantling biofilm structures to include treatment of the products and by-products of the dismantled biofilm structure. One of these products and by-products associated with the dismantled biofilm structure are the bacteria that are released when the biofilm structure is dismantled. Consequently, the Simonson invention is not able to achieve the dual functions (i.e. first treat plaque and then the byproducts from such treatment) that are described in the claimed invention.

In summary, Simonson requires a single modified enzyme to implement the invention. The claimed invention, on the other hand, requires two enzyme-anchor complexes to implement the invention. In the claimed invention, the first enzyme-anchor

Page 12

USSN 09/875,997

July 22, 2004

complex has the ability to dismantle the cystic fibrosis biofilm. The second, and necessary enzyme-anchor complex, comprises a second different enzyme that has the ability to act upon the products and by-products that result when the biofilm is dismantled, including the bacteria that resided within the biofilm structure.

(C) Summary of Differences: Simonson and claimed invention

(1) Purpose:

Simonson: disperse dental plaque.

Claimed Invention: treat the biofilm as well as the degradation products.

(2) Functional Objective of the Composition's Enzymatic Activity

Simonson: single purpose of dispersing dental plaque.

Claimed Invention: dual purpose - make biofilm components available so that the components can be treated.

(3) Functional Purpose of the Modification of the Enzyme

Simonson: to carry ("carrier") the plaque dispersing enzyme to the plaque structure

Claimed Invention: to retain ("anchor") the enzymatic function to treat biofilm degradation products and by-products.

Page 13

USSN 09/875,997

July 22, 2004

(4) Composition Components

Simonson: one enzyme and one carrier

Claimed Invention: two diverse enzymes and two anchors
constituted as two discrete anchor-enzyme complexes.

(D) Concluding Comments

In view of the discussion above, it is submitted that this response addresses all of the issues raised by the Examiner, and clearly demonstrates the differences between the claimed invention and the cited reference.

The Examiner is requested to enter the claim amendments since no further search or examination is required as a result of the amendment; the amendments simply recite an inferred feature of the invention. It is also submitted that the discussion herein clearly points for the Examiner how the invention as claimed differs from Simonson in several important respects.

CONTINUED NEXT PAGE

Page 14

USSN 09/875,997

July 22, 2004

Therefore, it is submitted that this response places the application in order for allowance. As such, a Notice of Allowance is now respectfully requested.

Respectfully submitted,



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Enclosed: Terminal Disclaimer

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